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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,709	02/20/2004	Trausti Kristjansson	M61.12-0589	5611

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EXAMINER	
COUSO, YON JUNG	
ART UNIT	PAPER NUMBER
2624	
MAIL DATE	DELIVERY MODE
03/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/783,709	KRISTJANSSON ET AL.	
	Examiner	Art Unit	
	Yon Couso	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,8,9,14-18 and 23-34* is/are rejected.

7)☒ Claim(s) *5-7,10-13 and 19-22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/22/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. Claims 31-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 31 "determining a mixture of probability distributions" is not clear as to what "a mixture of probability distributions" is.

As to claims 32-34, it appears that the claims further define the step of determining a mixture of probability distributions, which should depend from claim 31, instead of claim 30.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 8-9, 14-18, and 23-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Rui et al (US 2003/0103647).

As for claim 1, Rui teaches a method comprising: receiving at least two frames of image data (paragraph 0026); learning a model for the appearance of an object from the at least two frames of image data (paragraph 0030-0031); and tracking a changing position of the object in three dimensions from the at least two frames of image data (paragraph 0162).

As for claim 2, Rui teaches that each frame of image data consists of image data from at least two cameras (paragraph 0027).

As for claim 3, Rui teaches tracking a changing position comprises representing possible positions as particles (paragraphs 0162-0165).

As for claim 4, Rui teaches tracking a changing position further comprises weighting each particle in a set of particles based on the probability that the particle represents the position of the object (paragraphs 0166-0168).

As for claim 8, Rui teaches learning a model for the appearance of an object comprises using an expectation-maximization algorithm to learn the model of the appearance (paragraphs 0132-0135).

As for claim 9, Rui teaches that the expectation-maximization algorithm further comprises determining a posterior probability for the appearance of the object (paragraphs 0132-0135).

As for claim 14, Rui teaches determining a model of the appearance of a background (paragraphs 0105 and 0114).

As for claim 15, Rui teaches representing possible positions of the object as particles and weighting each particle (paragraphs 0086-0087); and determining a posterior probability for the appearance of the object based in part on the weighting of the particles (paragraphs 0088-0158).

As for claim 16, Rui teaches a computer-readable medium having computer-executable instructions for performing steps to track the position of an object and to learn a model of the appearance of the object, the steps comprising: representing

possible positions of the object as particles and weighting each particle (paragraphs 0086-0087); and determining a posterior probability for the appearance of the object based in part on the weighting of the particles (paragraphs 0088-0158).

As for claim 17, Rui teaches determining a posterior probability comprises using image data from at least two cameras (paragraph 0027).

As to claim 18, Rui teaches determining a posterior probability comprises determining a separate posterior probability for each particle, weighting each separate posterior probability based on the weight of the associated particle, and summing the weighted posterior probabilities to form the posterior probability (paragraphs 0143-0152).

As to claim 23, Rui teaches determining a posterior probability forms part of an expectation-maximization algorithm (paragraphs 0132-0135).

As to claim 24, Rui teaches that the expectation-maximization algorithm further comprises updating model parameters for a model of the appearance of the object based on the posterior probability (paragraphs 0132-0135).

As to claim 25, Rui teaches determining a first set of particles for a first frame of image data and determining a second set of particles for a second frame of image data.

As to claim 26, Rui teaches determining a second set of particles comprises selecting the second set of particles based on the weights of the particles in the first set of particles.

As to claim 27, Rui teaches a method comprising: receiving image data from a first camera; receiving image data from a second camera (paragraph 0027); selecting a

set of particles for a frame of the image data, each particle representing a possible position for an object (paragraphs 0030-0031); using the image data from the first camera and the second camera to determine a weight for each particle (paragraphs 0086-0087); and selecting a set of particles for a next frame of the image data based on the weights of the particles (paragraphs 0088-0158).

As to claim 28, Rui teaches using the image data from the first camera and the second camera to determine a posterior probability for the appearance of a pixel in an object (paragraphs 0132-0135).

As to claim 29, Rui teaches using the posterior probability to update model parameters that describe the appearance of the pixel (paragraphs 0105 and 0114).

As to claim 30, Rui teaches determining a posterior probability further comprises determining a separate posterior probability for each particle in the set of particles, weighting each separate posterior probability based on the weights of the respective particles, and summing the weighted posterior probabilities to form the posterior probability (paragraphs 0143-0152).

3. Claims 5-7, 10-13, and 19-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claims 31-34 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Brill et al, Liang et al, Keaton et al, Gutta et al, and Shama et al are also cited.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yon Couso whose telephone number is (571) 272-7448. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis, can be reached on (571) 272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Yon Couso/

Primary Examiner, Art Unit 2624

March 3, 2008